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TITLE: VOICE ACTIVATED VISUAL REPRESENTATION DISPLAY SYSTEM

INVENTOR: ANTHONY ANCONA

DOC NO.: 11406

BACKGROUND OF THE INVENTION

The invention relates to a voice activated visual representation display system. More particularly, the invention relates to a system which monitors a spoken description of an event as it takes place, and then recreates a visual representation of that event and renders the visual representation on a display device.

Since the turn of the twentieth century, people have listened to oral accounts of events taking place in far-off locations. Essentially since the invention of the radio, man has had the ability to communicate directly and instantaneously with others far away. In addition to hearing reports of battles, political events, and social events,

people have listened intently to "play-by-play" accounts of sporting events of all kinds.

As people began paying close attention to radio broadcasts of sporting events, the art of "sports casting" began developing. An expert sportscaster would fully describe the action as it was taking place and make the listeners feel almost as if they were actually watching the event.

As television became available to the masses, people were suddenly able to view the action themselves. However, sports casting has remained an important part of sports reporting. Many people still "listen to the game" on the radio while driving in cars, at work, and laying on the beach, etc. Accordingly, radio broadcasts of sporting events are still widely available.

Although the technology is clearly available to televise any event, not all events are televised. Budgetary concerns and bandwidth limitations make it difficult to provide televised broadcasts of every sporting event at all times.

Accordingly, many fans are forced to listen to a radio broadcast.

Many devices have been promulgated which use voice recognition to control different devices in the real world, as well as to control the operations of a computer system.

While these units may be suitable for the particular purpose employed, or for general use, they would not be as suitable

for the purposes of the present invention as disclosed  
hereafter.

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## SUMMARY OF THE INVENTION

It is an object of the invention to provide a visual display system which is capable of recognizing oral  
5 descriptions, interpreting the oral descriptions, and displaying visual representations based upon the interpretation of those descriptions.

It is a further object of the invention to provide a visual display system which is particularly suited for use  
10 with sporting events. Accordingly, the system recognizes common descriptions of common occurrences during a sporting event, and is capable of graphically recreating such occurrences.

It is yet a further object of the invention to allow  
15 users to provide their own descriptions of what they would like to see. Accordingly, a microphone is provided to give the user the ability to control the visually displayed graphical representations.

It is a still further object of the invention to enhance  
20 the enjoyment of the fan listening to the game. Accordingly, the visual representations of various events in the game are depicted to the user, who can then keep track of various occurrences in the game, while monitoring an audio report of the game.

25 The invention is a voice activated visual pattern display unit, comprising a voice recognition unit, a pattern recognition unit, a phrase library, and a display generator.

Input speech is recognized with the voice recognition unit.

Phrases within the speech are isolated by the pattern recognition unit and are compared to the phrases within the phrase library. When a match occurs between the phrase

5 within the speech and the phrase within the library, images associated with that phrase in the library are transferred to the display generator, which then allows the images to be displayed on a display unit.

To the accomplishment of the above and related objects  
10 the invention may be embodied in the form illustrated in the accompanying drawings. Attention is called to the fact, however, that the drawings are illustrative only. Variations are contemplated as being part of the invention, limited only by the scope of the claims.

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## BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, like elements are depicted by like reference numerals. The drawings are briefly described as follows.

FIG 1 is a top plan view, illustrating major components of the visual pattern display system.

FIG 2 is a block diagram, illustrating the functional interconnection of various components of the visual pattern display system.

FIG 3 is a flow diagram, providing an example of the display system in use.

FIG 4 is a front elevational view of a display unit, showing a sample display according to the example of FIG 3.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG 1 illustrates a visual pattern display system 10, comprising a housing 12, having a microphone 14, a power input 16, and a video output 18. The visual pattern display system 10 is connected to a display unit 20, which may be a standard television, a video monitor, a computer monitor, or the like. Of course, different physical configurations may be provided, including those which include a display device within the housing 12, and which employ a headset type microphone. During typical usage of the display system 10, a separate radio 21, and accompanying headset 22 are often employed as described hereinafter.

In accordance with the present invention, sounds received by the microphone 14 are converted to an audio signal 30 thereby. The audio signal is deciphered by a voice recognition unit 32, which detects and recognizes patterns within the audio signal as speech, and more particularly, detects words within the speech. Such systems have been the subject of considerable study and development over the last several decades. Accordingly, no detailed explanation of the operation of voice or speech recognition technology is included in the present discussion. Of importance though, is that the speech recognition unit recognizes words, and outputs them in textual form or another suitable format.

Once the speech is broken down into words, a speech pattern recognition unit 34, compares isolates phrases within

the speech and compares them with a phrase library 36. The phrase library 36 contains numerous phrases 38A and associated images 38B. When a close match with one of the phrases 38A is detected, the associated images 38B are sent  
5 to a display generator 40. The display generator 40 produces a video output signal 42, available at the video output 18 for display on an external display device.

FIG 3 and FIG 4 provide a simplistic example of the system in use. Initially, the user speaks, and sounds are  
10 detected by the microphone 100. From these sounds, speech is detected, namely: "bases loaded, no outs" 102. From this speech, the phrase "bases loaded" is isolated. The isolated phrase "bases loaded" is searched in the library, and is found, along with associated images depicting 'loaded bases'  
15 106. The images of 'loaded bases' are conveyed to the display generator 108, and the image of 'loaded bases' 120 is displayed on the display unit 20 as seen in FIG 4.

The foregoing example provides the user with a static image of 'loaded bases' as a result. However, by the same  
20 process a series of images, in the form of a video clip, could be conjured up as well. For example, more complex phrases, such as "runner going to third, ball thrown to third, runner is out at third" could be broken into it's components of three individual phrases, which would then be  
25 displayed using the same principles as the foregoing example. Implementing such examples would simply involve increased complexity in terms of language analysis, phrase recognition,



and in terms of the appropriateness of images selected to be displayed. Of course, artificial intelligence could be used to modify the images according to variations in the actual phrase spoken. For example if an actual player's name is  
5 spoken instead of "runner", modifications could be made to the images, such that the depicted runner resembles the actual player's likeness, and is rendered having his actual jersey number, etc. Implementation of such an example and rendering the appropriate images would be no more complex or  
10 extraordinary than required by present day video games.

Accordingly, the specific design and configuration of such a system would be well within the skill of one of ordinary skill in the art, and no further detail is required herein.

With regard to typical usage of the display device 10,  
15 the device 10 may be used to follow and enhance the enjoyment of a sporting event. The user listens to the sporting event, and oral descriptions of occurrences during the sporting event using the radio 21, and more directly, with the headphones 22. As the user chooses, he utters speech  
20 regarding different occurrences with the event that he would like to view. He speaks into the microphone 14, and thus begins operation of the display device as previously described, and as depicted in FIG 2. However, to summarize, the uttered speech is recognized, and phrases within the  
25 speech are isolated and compared to phrases in the phrase library. Once a suitable match is found within the phrase library, images are displayed to the user on the display

unit, thus providing him with a visual depiction of the occurrences uttered.

In conclusion, herein is presented a visual display device which by a preferred embodiment enhances the user's enjoyment of a sporting event by allowing him to see a visual depiction of events he has just heard about while listening to an audio account of the event. The foregoing description provides a workable example of the inventive concepts.

However, it should be understood that the invention has been illustrated by example only. Numerous variations are possible, while adhering to the inventive principles. Such variations are contemplated as being a part of the present invention, limited only by the scope of the claims.

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